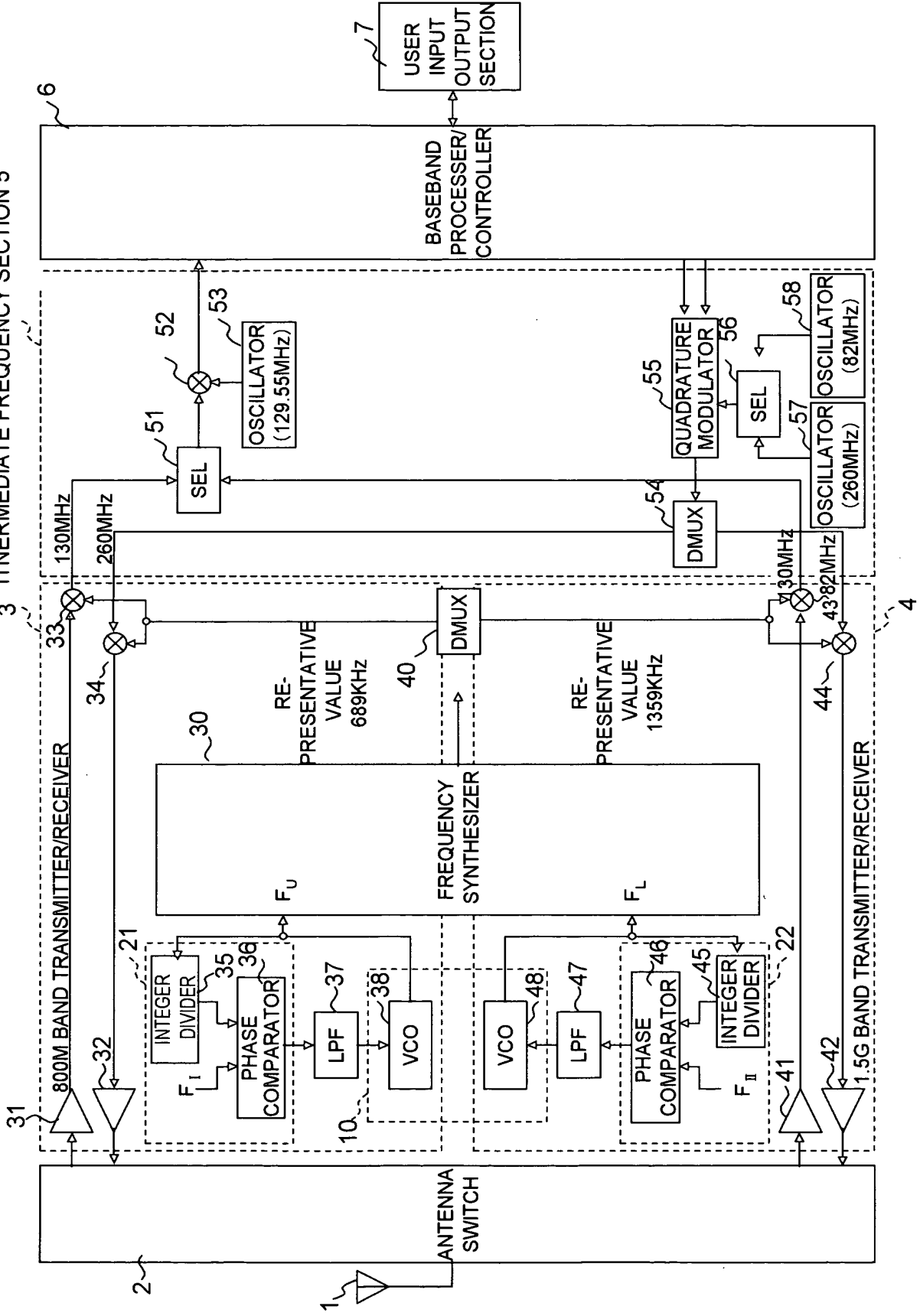




FIG. 2

3 INTERMEDIATE FREQUENCY SECTION 5



# FIG. 3

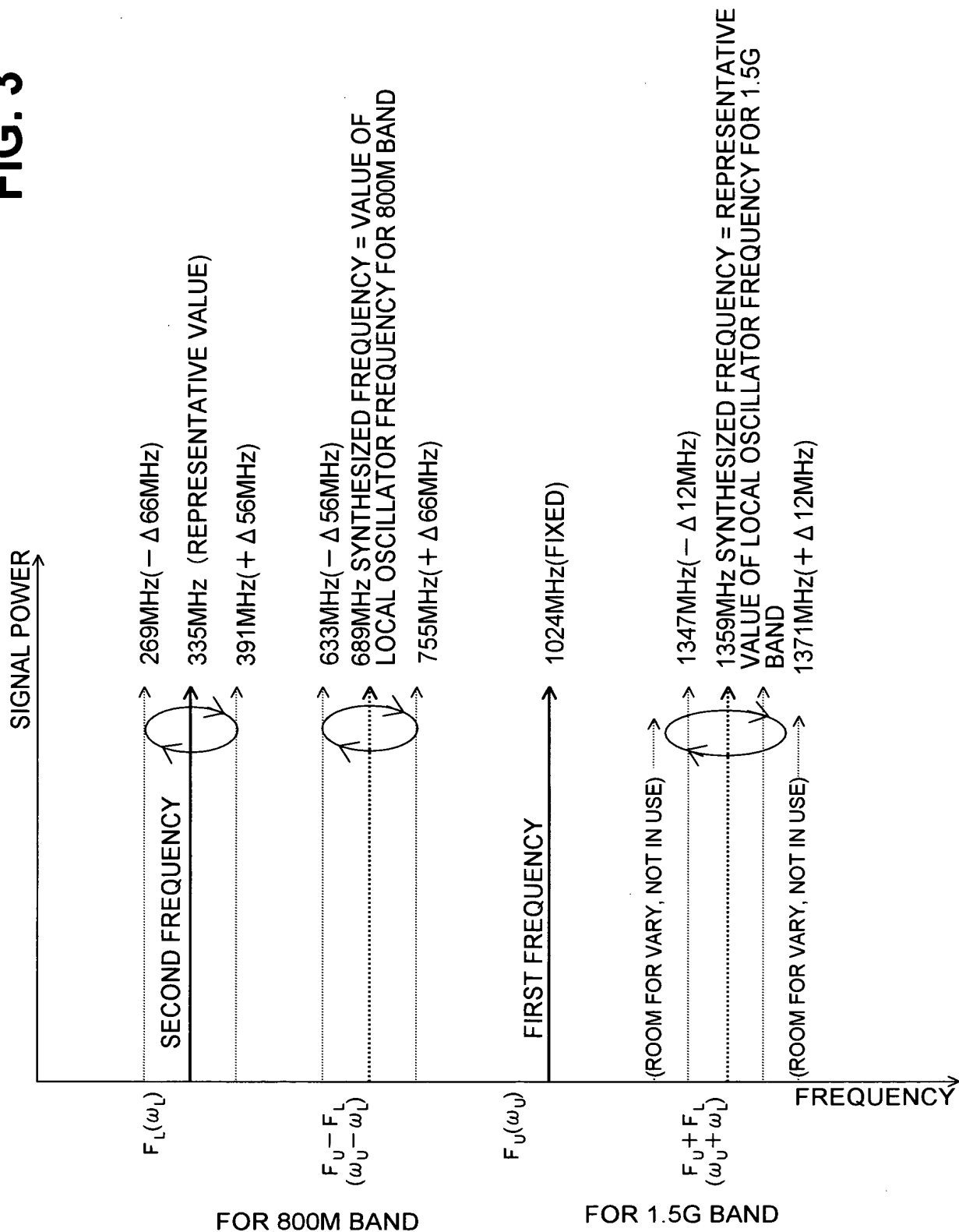


FIG. 4

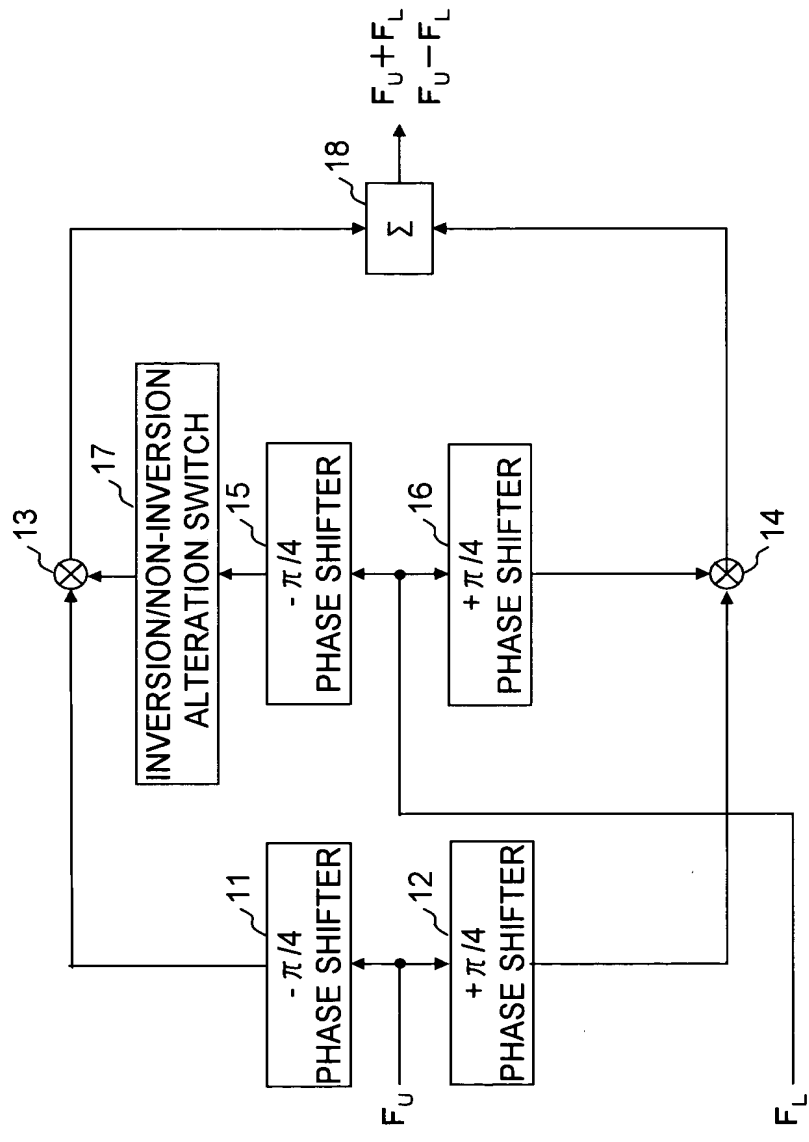


FIG. 5

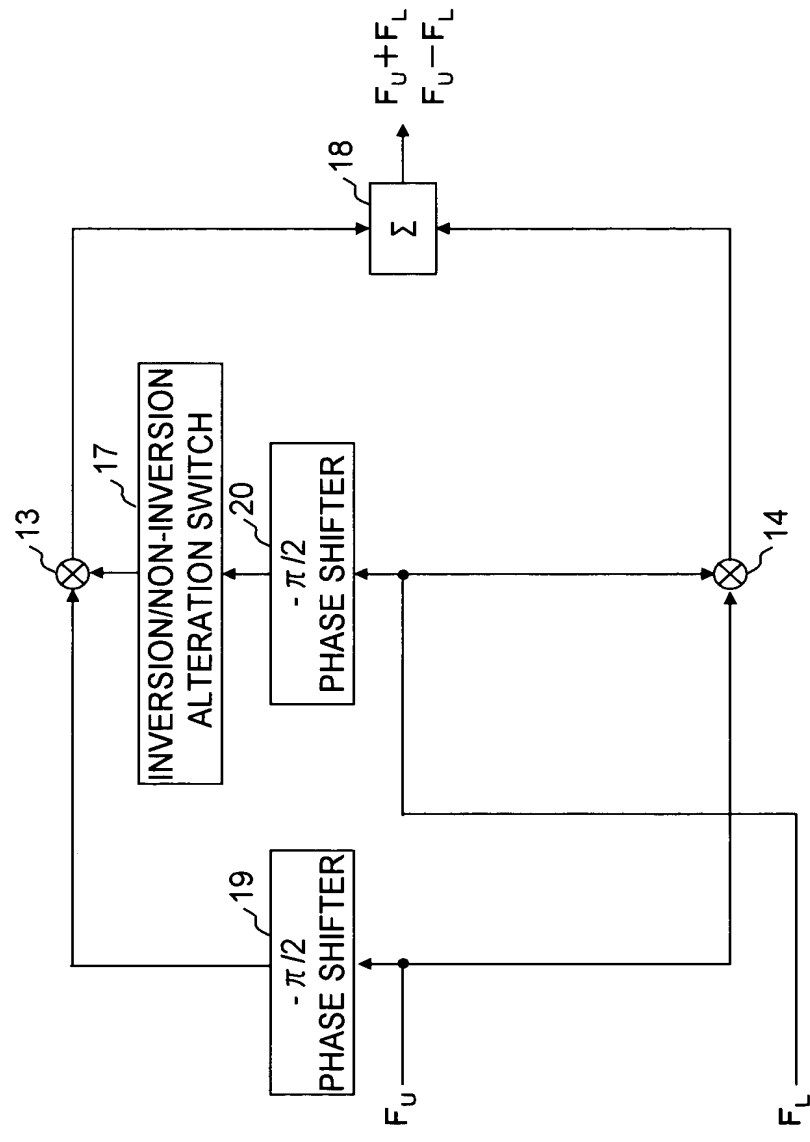
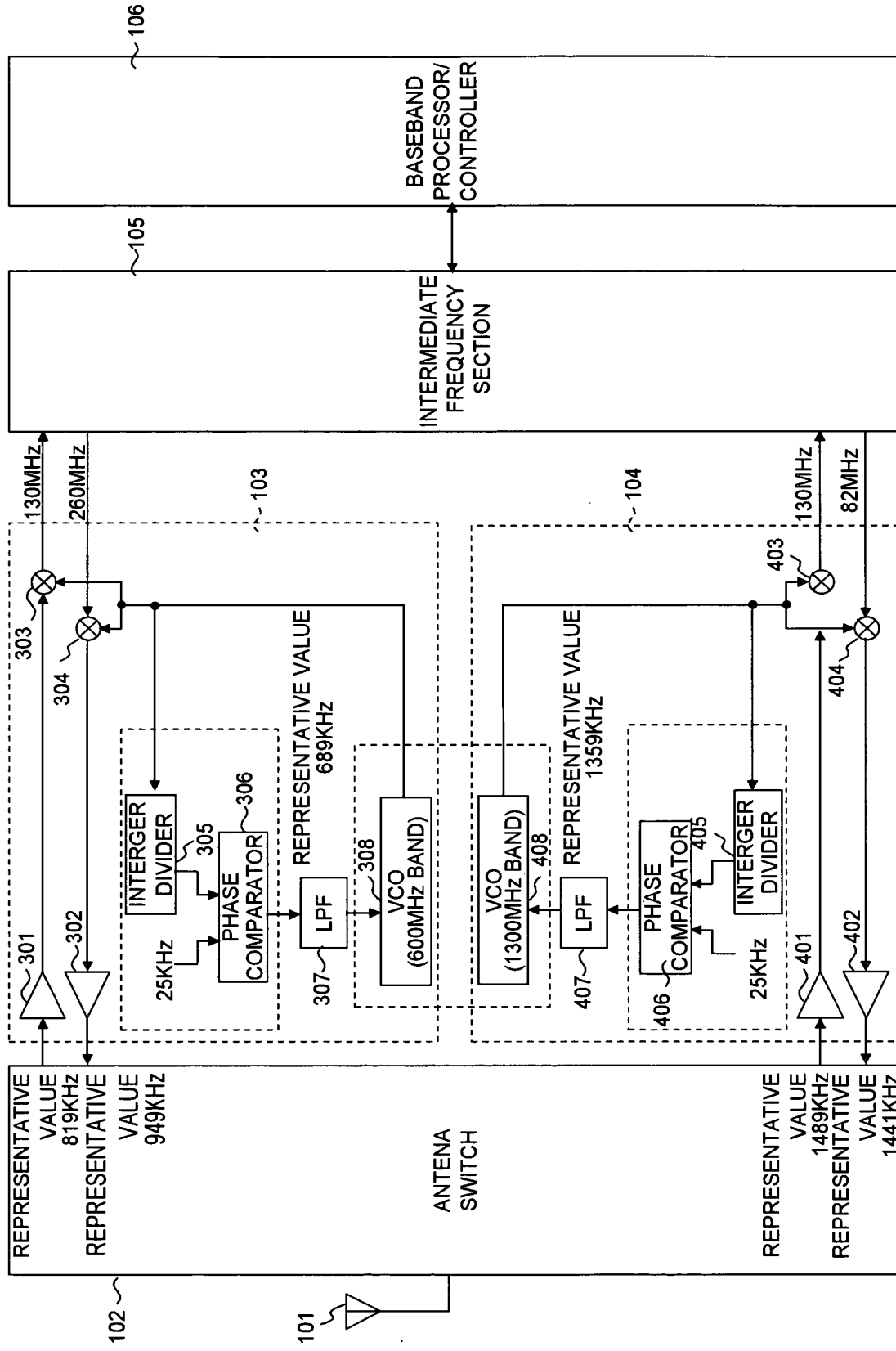


FIG. 6

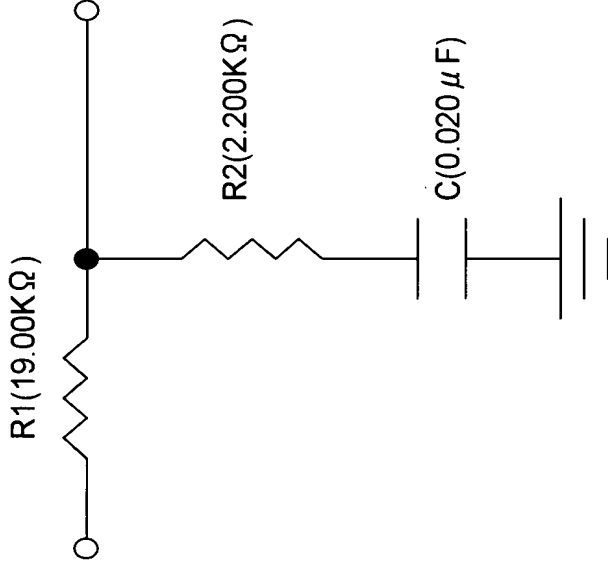


# FIG. 7

1.5G BAND SETTING EXAMPLE :

LPF TIME FACTOR  $\tau_1 = C \cdot R_1 = 0.020 \mu \cdot 19.00K = 380.0 \mu [s]$

LPF TIME FACTOR  $\tau_2 = C \cdot R_2 = 0.020 \mu \cdot 2.200K = 44.00 \mu [s]$



FREQUENCY DIVISION NUMBER  $N = 1,359M[Hz]/25K[Hz] = 54,360$

DUMPING FACTOR  $\zeta = 0.6$

PHASE COMPARATOR GAIN  $K_p = 3[V]/(4\pi) = 2.355 [V/rad]$

∴ CONTROLLED VOLTAGE  $0 \sim 3[V]$ ,

PHASE COMPARATOR RANGE  $-2\pi \sim +2\pi = 4\pi$

CONTROL SENSITIVITY OF VOLTAGE CONTROLLED OSCILLATOR  $K_v = 8M [Hz/V] \div 50.24M[rad/s/M]$

(DEPENDING ON VOLTAGE CONTROLLED OSCILLATOR)

∴ LOOP GAIN  $K = (K_p \cdot K_v) / N = (2.355 \cdot 50.24M) / 54,360 = 2.177[s^{(-1)}]$

[CALCULATION RESULT]

NATURAL ANGULAR FREQUENCY

$\omega_n = \{K / (\tau_1 + \tau_2)\}^{1/2} = 2.266K[rad/s]$

NATURAL FREQUENCY  $F_n = 2.266K / (2\pi) = 360.8[Hz]$

∴ NATURAL VIBRATION PERIOD OF PHASE CONVERGENCE LOOP

$= 1 / F_n = 2.772m[s]$

# FIG. 8

EXAMPLE OF TRANSITIONAL RESPONSE IN CASE DUMPING FACTOR  $\zeta = 0.6$

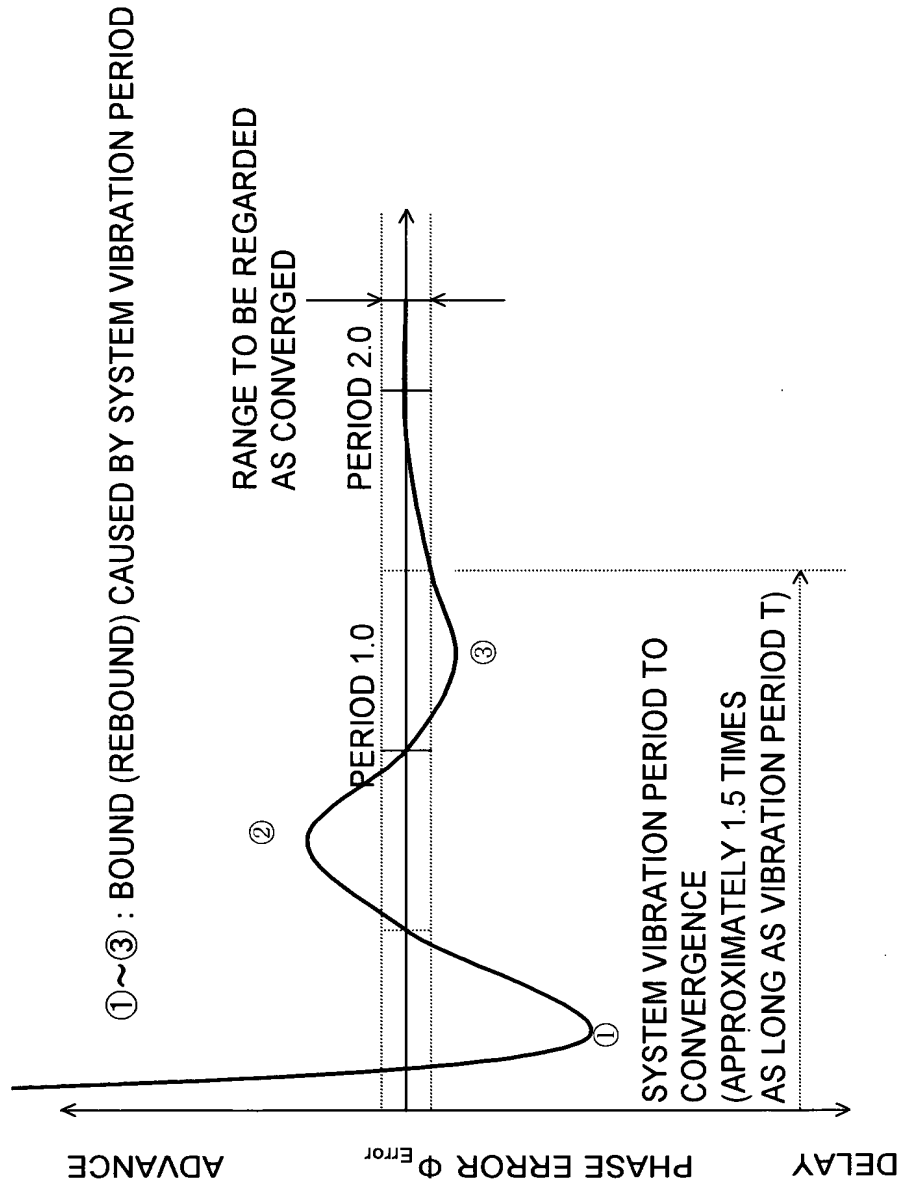




FIG. 9

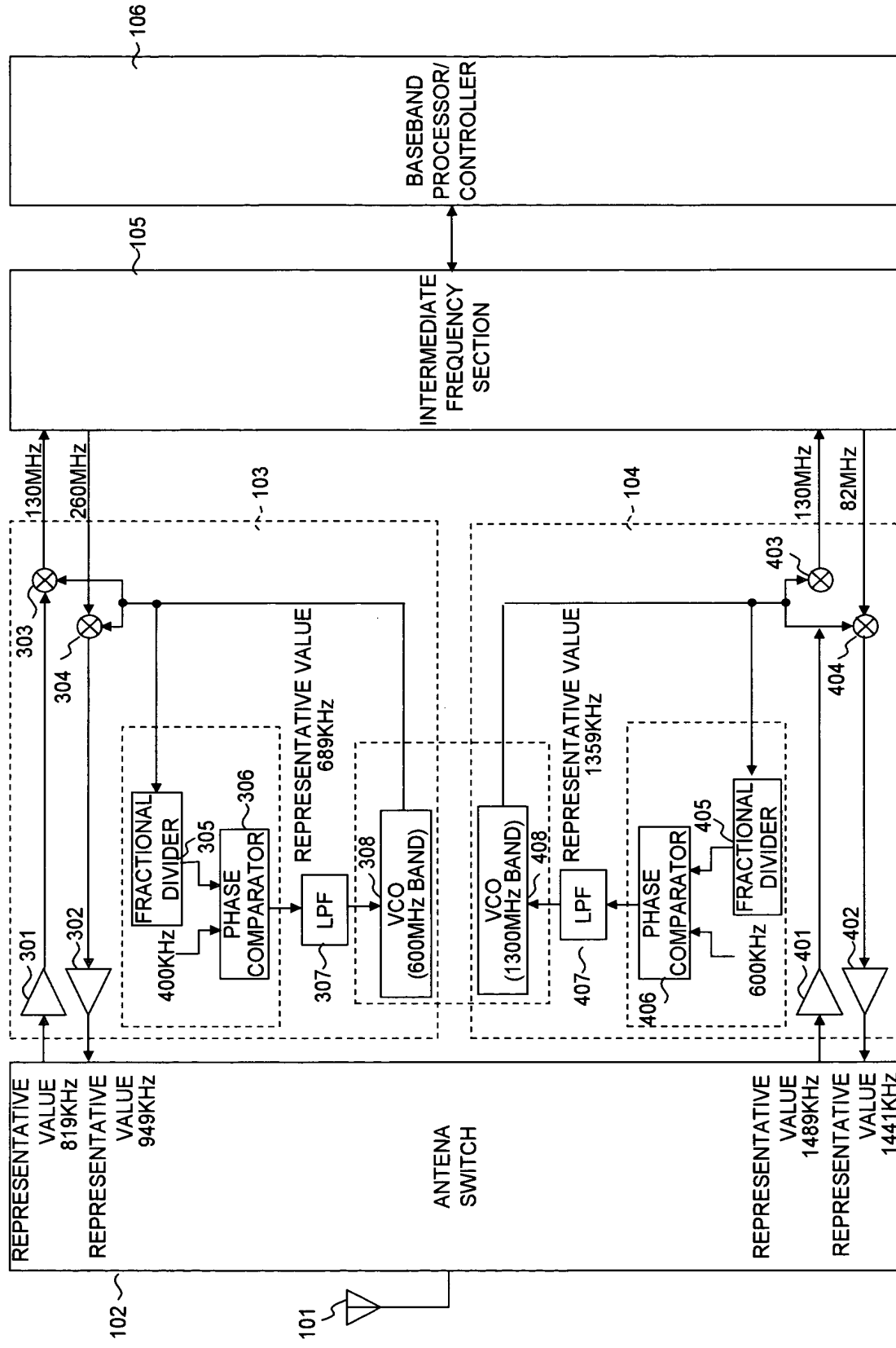


FIG. 10

